

Schema iv-2.0.xsd

schema location: <G:\GRIPHYN\PEGASUS\iv-2.0.xsd>  
 targetNamespace: <http://pegasus.isi.edu/schema/invoction>

Elements: Complex types Simple types  
**invocation** JobType DottedQuad  
 RUsageType PositiveDecimal  
 StatCallType ResourceValue

element invocation

diagram	<p><b>invocation</b> record of an application run for a given TR and DV.</p> <ul style="list-style-type: none"> <li><b>setup</b>: Optional job to run independently first.</li> <li><b>prejob</b>: Optional job to run before invoking the application.</li> <li><b>mainjob</b>: The application itself.</li> <li><b>postjob</b>: Optional job to run after invoking the application.</li> <li><b>cleanup</b>: Optional job to run independently last.</li> <li><b>cwd</b>: Record the current working directory at time of execution.</li> <li><b>usage</b>: Resource usage recorded of gridstart itself.</li> <li><b>uname</b>: Report architecture information.</li> <li><b>statcall</b>: Inode info on shared and outside apps and streams. (Default: 1,∞)</li> <li><b>environment</b>: Environment setting as seen by process.</li> <li><b>resource</b>: Resource limits as imposed by the compute environment.</li> </ul>					
namespace	<a href="http://pegasus.isi.edu/schema/invoction">http://pegasus.isi.edu/schema/invoction</a>					
children	<a href="#">setup</a> <a href="#">prejob</a> <a href="#">mainjob</a> <a href="#">postjob</a> <a href="#">cleanup</a> <a href="#">cwd</a> <a href="#">usage</a> <a href="#">uname</a> <a href="#">statcall</a> <a href="#">environment</a> <a href="#">resource</a>					
attributes	Name	Type	Use	Default	Fixed	Annotation
	version	xs:NMTOKEN	required			
	start	xs:dateTime	required			documentation Start of application according to host clock.
	duration	PositiveDecimal	required			documentation Duration of application run in seconds with microsecond fraction, according to host clock.
	transformation	xs:string	optional	null		
	derivation	xs:string	optional	null		
	resource	xs:string	optional			
	hostaddr	DottedQuad	optional	0.0.0.0		documentation Host address of the primary interface, as far as discernable.
	hostname	xs:string	optional			
	pid	xs:decimal	optional			documentation process number of the gridlaunch application itself.
	uid	xs:integer	optional			documentation real user id on the compute node that started grid launch.
	user	xs:string	optional			
	gid	xs:integer	optional			documentation real group id of the user that started gridlaunch
	group	xs:string	optional			
	wf-label	xs:string	optional			
	wf-stamp	xs:dateTime	optional			
	umask	xs:token	optional			
annotation	documentation record of an application run for a given TR and DV.					

element invocation/setup

diagram					
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	<p>The diagram shows a central 'JobType' container (dashed box) containing several elements: 'usage' (text description), 'status' (text description), 'statcall' (text description), 'arguments' (text description), and 'argument-vector' (text description). An external 'setup' element is connected to the JobType container via a dashed line. The 'setup' element is described as 'Optional job to run independently first.'</p>																								
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children	<b>usage status statcall arguments argument-vector</b>																								
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duration	PositiveDecimal	required																							
pid	xs:decimal	optional																							
annotation	documentation: Optional job to run independently first.																								

element invocation/prejob

<p>diagram</p>	<p>The diagram shows a central 'JobType' container (dashed box) containing several elements: 'usage' (text description), 'status' (text description), 'statcall' (text description), 'arguments' (text description), and 'argument-vector' (text description). An external 'prejob' element is connected to the JobType container via a dashed line. The 'prejob' element is described as 'Optional job to run before invoking the application.'</p>																								
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duration	PositiveDecimal	required																							
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annotation	documentation: Optional job to run before invoking the application.																								

element invocation/mainjob

<p>diagram</p>	<p>The diagram shows a central 'JobType' container (dashed box) containing several elements: 'usage' (text description), 'status' (text description), 'statcall' (text description), 'arguments' (text description), and 'argument-vector' (text description). An external 'mainjob' element is connected to the JobType container via a dashed line. The 'mainjob' element is described as 'The application itself.'</p>
namespace	http://pegasus.isi.edu/schema/invocation
type	<b>JobType</b>

children	<b>usage status statcall arguments argument-vector</b>					
attributes	Name	Type	Use	Default	Fixed	Annotation
	start	xs:dateTime	required			
	duration	PositiveDecimal	required			
	pid	xs:decimal	optional			
annotation	documentation The application itself.					

#### element invocation/postjob

diagram	<p>The diagram shows a dashed box labeled 'JobType' containing five elements: 'usage' (text description: 'Except of the struct rusage returned for the application.'), 'status' (text description: 'Exit status of application, which may be a signal with core dump.'), 'statcall' (text description: 'Inode information about the application that was run.'), 'arguments' (text description: 'Name and arguments of the executable of application.'), and 'argument-vector' (text description: 'Enumerates the argument vector for debugging.'). An external 'postjob' element (text description: 'Optional job to run after invoking the application.') is connected to the JobType element.</p>					
namespace	http://pegasus.isi.edu/schema/invocation					
type	<b>JobType</b>					
children	<b>usage status statcall arguments argument-vector</b>					
attributes	Name	Type	Use	Default	Fixed	Annotation
	start	xs:dateTime	required			
	duration	PositiveDecimal	required			
	pid	xs:decimal	optional			
annotation	documentation Optional job to run after invoking the application.					

#### element invocation/cleanup

diagram	<p>The diagram shows a dashed box labeled 'JobType' containing five elements: 'usage' (text description: 'Except of the struct rusage returned for the application.'), 'status' (text description: 'Exit status of application, which may be a signal with core dump.'), 'statcall' (text description: 'Inode information about the application that was run.'), 'arguments' (text description: 'Name and arguments of the executable of application.'), and 'argument-vector' (text description: 'Enumerates the argument vector for debugging.'). An external 'cleanup' element (text description: 'Optional job to run independently last.') is connected to the JobType element.</p>					
namespace	http://pegasus.isi.edu/schema/invocation					
type	<b>JobType</b>					
children	<b>usage status statcall arguments argument-vector</b>					
attributes	Name	Type	Use	Default	Fixed	Annotation
	start	xs:dateTime	required			
	duration	PositiveDecimal	required			
	pid	xs:decimal	optional			
annotation	documentation Optional job to run independently last.					

#### element invocation/cwd

diagram	<p>The diagram shows a box labeled 'cwd' containing the text description: 'Record the current working directory at time of execution.'</p>					
namespace	http://pegasus.isi.edu/schema/invocation					
type	restriction of xs:string					
facets	maxLength 4096 whiteSpace preserve					
annotation	documentation Record the current working directory at time of execution.					

#### element invocation/usage

diagram						
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diagram																																																																																																							
namespace	http://pegasus.isi.edu/schema/invocation																																																																																																						
type	<b>RUsageType</b>																																																																																																						
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annotation	documentation Resource usage recorded of gridstart itself.																																																																																																						

element invocation/uname

diagram																																											
namespace	http://pegasus.isi.edu/schema/invocation																																										
type	extension of <b>xs:token</b>																																										
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annotation	documentation Report architecture information.																																										

element invocation/statcall

diagram																									
namespace	http://pegasus.isi.edu/schema/invocation																								
type	extension of <b>StatCallType</b>																								
children	<b>file descriptor temporary fifo statinfo data</b>																								
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annotation	documentation Inode info on shared and outside apps and streams.																								

element invocation/environment

diagram	
namespace	http://pegasus.isi.edu/schema/invocation
children	<b>env</b>
annotation	documentation Environment setting as seen by process.

element invocation/environment/env

diagram	
namespace	http://pegasus.isi.edu/schema/invocation

type	extension of <b>xs:string</b>												
attributes	<table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Use</th> <th>Default</th> <th>Fixed</th> <th>Annotation</th> </tr> </thead> <tbody> <tr> <td>key</td> <td>xs:string</td> <td>required</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Name	Type	Use	Default	Fixed	Annotation	key	xs:string	required			
Name	Type	Use	Default	Fixed	Annotation								
key	xs:string	required											
annotation	documentation single environment key-value pair.												

**element invocation/resource**

diagram	
namespace	http://pegasus.isi.edu/schema/invocation
children	<b>soft</b> <b>hard</b>
annotation	documentation Resource limits as imposed by the compute environment.

**element invocation/resource/soft**

diagram													
namespace	http://pegasus.isi.edu/schema/invocation												
type	extension of <b>ResourceValue</b>												
facets	pattern (unlimited d+)												
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id	xs:NMTOKEN	required											

**element invocation/resource/hard**

diagram													
namespace	http://pegasus.isi.edu/schema/invocation												
type	extension of <b>ResourceValue</b>												
facets	pattern (unlimited d+)												
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**complexType JobType**

diagram																									
namespace	http://pegasus.isi.edu/schema/invocation																								
children	<b>usage</b> <b>status</b> <b>statcall</b> <b>arguments</b> <b>argument-vector</b>																								
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start	xs:dateTime	required																							
duration	PositiveDecimal	required																							
pid	xs:decimal	optional																							
annotation	documentation Information about a specific job that ran as part of the invocation.																								

**element JobType/usage**

diagram																																																																																											
namespace	http://pegasus.isi.edu/schema/invocation																																																																																										
type	<b>RUsageType</b>																																																																																										
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msgsnd	xs:unsignedLong optional
msgrcv	xs:unsignedLong optional
annotation	documentation Excerpt of the struct rusage returned for the application.

## element JobType/status

diagram													
namespace	http://pegasus.isi.edu/schema/invocation												
children	<b>failure regular signalled suspended</b>												
attributes	<table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Use</th> <th>Default</th> <th>Fixed</th> <th>Annotation</th> </tr> </thead> <tbody> <tr> <td>raw</td> <td>xs:int</td> <td>required</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Name	Type	Use	Default	Fixed	Annotation	raw	xs:int	required			
Name	Type	Use	Default	Fixed	Annotation								
raw	xs:int	required											
annotation	documentation Exit status of application, which may be a signal with core dump.												

## element JobType/status/failure

diagram													
namespace	http://pegasus.isi.edu/schema/invocation												
type	extension of xs:string												
attributes	<table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Use</th> <th>Default</th> <th>Fixed</th> <th>Annotation</th> </tr> </thead> <tbody> <tr> <td>error</td> <td>xs:short</td> <td>required</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Name	Type	Use	Default	Fixed	Annotation	error	xs:short	required			
Name	Type	Use	Default	Fixed	Annotation								
error	xs:short	required											
annotation	documentation Failure to start application. This is an error by gridstart.												

## element JobType/status/regular

diagram													
namespace	http://pegasus.isi.edu/schema/invocation												
attributes	<table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Use</th> <th>Default</th> <th>Fixed</th> <th>Annotation</th> </tr> </thead> <tbody> <tr> <td>exitcode</td> <td>xs:unsignedByte</td> <td>required</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Name	Type	Use	Default	Fixed	Annotation	exitcode	xs:unsignedByte	required			
Name	Type	Use	Default	Fixed	Annotation								
exitcode	xs:unsignedByte	required											
annotation	documentation Controlled application exit, may indicate error.												

## element JobType/status/signalled

diagram																			
namespace	http://pegasus.isi.edu/schema/invocation																		
type	extension of xs:string																		
attributes	<table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Use</th> <th>Default</th> <th>Fixed</th> <th>Annotation</th> </tr> </thead> <tbody> <tr> <td>signal</td> <td>xs:boolean</td> <td>required</td> <td></td> <td></td> <td></td> </tr> <tr> <td>corefile</td> <td>xs:boolean</td> <td>optional</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Name	Type	Use	Default	Fixed	Annotation	signal	xs:boolean	required				corefile	xs:boolean	optional			
Name	Type	Use	Default	Fixed	Annotation														
signal	xs:boolean	required																	
corefile	xs:boolean	optional																	
annotation	documentation Application died on signal.																		

## element JobType/status/suspended

diagram													
namespace	http://pegasus.isi.edu/schema/invocation												
type	extension of xs:string												
attributes	<table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Use</th> <th>Default</th> <th>Fixed</th> <th>Annotation</th> </tr> </thead> <tbody> <tr> <td>signal</td> <td>xs:byte</td> <td>required</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Name	Type	Use	Default	Fixed	Annotation	signal	xs:byte	required			
Name	Type	Use	Default	Fixed	Annotation								
signal	xs:byte	required											
annotation	documentation This should not happen.												

## element JobType/statcall

diagram	
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namespace	http://pegasus.isi.edu/schema/invocation												
type	<b>StatCallType</b>												
children	<b>file descriptor temporary fifo statinfo data</b>												
attributes	<table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Use</th> <th>Default</th> <th>Fixed</th> <th>Annotation</th> </tr> </thead> <tbody> <tr> <td>error</td> <td>xs:int</td> <td>required</td> <td></td> <td></td> <td>documentation result from the stat call on a named file or descriptor.</td> </tr> </tbody> </table>	Name	Type	Use	Default	Fixed	Annotation	error	xs:int	required			documentation result from the stat call on a named file or descriptor.
Name	Type	Use	Default	Fixed	Annotation								
error	xs:int	required			documentation result from the stat call on a named file or descriptor.								
annotation	documentation Inode information about the application that was run.												

element JobType/arguments

diagram													
namespace	http://pegasus.isi.edu/schema/invocation												
type	extension of <b>xs:string</b>												
attributes	<table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Use</th> <th>Default</th> <th>Fixed</th> <th>Annotation</th> </tr> </thead> <tbody> <tr> <td>executable</td> <td>xs:string</td> <td>optional</td> <td></td> <td></td> <td>documentation DEPRECATED - redundant attribute will be dropped soon.</td> </tr> </tbody> </table>	Name	Type	Use	Default	Fixed	Annotation	executable	xs:string	optional			documentation DEPRECATED - redundant attribute will be dropped soon.
Name	Type	Use	Default	Fixed	Annotation								
executable	xs:string	optional			documentation DEPRECATED - redundant attribute will be dropped soon.								
annotation	documentation Name and arguments of the executable of application.												

element JobType/argument-vector

diagram													
namespace	http://pegasus.isi.edu/schema/invocation												
children	<b>arg</b>												
attributes	<table border="1"> <thead> <tr> <th>Name</th> <th>Type</th> <th>Use</th> <th>Default</th> <th>Fixed</th> <th>Annotation</th> </tr> </thead> <tbody> <tr> <td>executable</td> <td>xs:string</td> <td>optional</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Name	Type	Use	Default	Fixed	Annotation	executable	xs:string	optional			
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annotation	documentation Enumerates the argument vector for debugging.												

element JobType/argument-vector/arg

diagram													
namespace	http://pegasus.isi.edu/schema/invocation												
type	extension of <b>xs:string</b>												
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Name	Type	Use	Default	Fixed	Annotation								
nr	xs:nonNegativeInteger	required											
annotation	documentation Single argument vector entry.												

complexType RUsageType

diagram																																																																																																	
namespace	http://pegasus.isi.edu/schema/invocation																																																																																																
used by	elements <b>invocation/usage JobType/usage</b>																																																																																																
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	msgrcv xs:unsignedLong optional
annotation	documentation Information from the rusage record.

complexType StatCallType

diagram						
namespace	http://pegasus.isi.edu/schema/invocation					
children	file descriptor temporary fifo statinfo data					
used by	elements invocation/statcall JobType/statcall					
attributes	Name	Type	Use	Default	Fixed	Annotation
	error	xs:int	required			documentation result from the stat call on a named file or descriptor.
annotation	documentation Information about a named file or descriptor.					

element StatCallType/file

diagram						
namespace	http://pegasus.isi.edu/schema/invocation					
type	extension of xs:hexBinary					
attributes	Name	Type	Use	Default	Fixed	Annotation
	name	xs:string	required			documentation A named file may be a regular file like a shell script or executable, or it may be a device file like /dev/null. Only regular files may incur element content.
annotation	documentation Named file in filesystem.					

element StatCallType/descriptor

diagram						
namespace	http://pegasus.isi.edu/schema/invocation					
attributes	Name	Type	Use	Default	Fixed	Annotation
	number	xs:nonNegativeInteger	required			
annotation	documentation Pre-opened descriptor.					

element StatCallType/temporary

diagram						
namespace	http://pegasus.isi.edu/schema/invocation					
attributes	Name	Type	Use	Default	Fixed	Annotation
	name	xs:string	required			
	descriptor	xs:integer	required			
annotation	documentation Created temporary file.					

element StatCallType/fifo

diagram						
namespace	http://pegasus.isi.edu/schema/invocation					
attributes	Name	Type	Use	Default	Fixed	Annotation
	name	xs:string	required			
	descriptor	xs:integer	required			
	count	xs:nonNegativeInteger	optional	0		
	rsize	xs:nonNegativeInteger	optional	0		
	wsize	xs:nonNegativeInteger	optional	0		
annotation	documentation Auto-created feedback FIFO.					

element StatCallType/statinfo

diagram						
namespace	http://pegasus.isi.edu/schema/invocation					
attributes	Name	Type	Use	Default	Fixed	Annotation

	size	xs:integer	required	
	mode	xs:token	optional	documentation file protection in octal number with leading zero.
	inode	xs:integer	optional	
	nlink	xs:nonNegativeInteger	optional	
	blocks	xs:nonNegativeInteger	optional	
	blksize	xs:nonNegativeInteger	optional	
	atime	xs:dateTime	optional	
	mtime	xs:dateTime	optional	
	ctime	xs:dateTime	optional	
	uid	xs:integer	optional	
	user	xs:string	optional	
	gid	xs:integer	optional	
	group	xs:string	optional	
annotation	documentation Kernel inode information.			

#### element StatCallType/data

diagram	 <p>One page of content from temporary files.</p>				
namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>				
type	extension of <b>xs:string</b>				
attributes	Name	Type	Use	Default	Fixed
	truncated	xs:boolean	optional		
annotation	documentation One page of content from temporary files.				

#### simpleType DottedQuad

namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>				
type	restriction of <b>xs:string</b>				
used by	attribute <a href="#">invocation/@hostaddr</a>				
facets	minLength 7 maxLength 15 whiteSpace collapse pattern (\\d{1,3}){3}\\d{1,3}				
annotation	documentation dotted quad notation of a IPv4 host address.				

#### simpleType PositiveDecimal

namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>				
type	restriction of <b>xs:decimal</b>				
used by	attributes <a href="#">invocation/@duration</a> <a href="#">JobType/@duration</a>				
facets	minInclusive 0				
annotation	documentation restricted version of the 'decimal' type.				

#### simpleType ResourceValue

namespace	<a href="http://pegasus.isi.edu/schema/invocation">http://pegasus.isi.edu/schema/invocation</a>				
type	restriction of <b>xs:string</b>				
used by	elements <a href="#">invocation/resource/hard</a> <a href="#">invocation/resource/soft</a>				
facets	pattern (unlimited \\d+)				
annotation	documentation value for a resource usage				